

DOCUMENT RESUME

ED 393 539

PS 023 503

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TITLE New Findings on Children, Families, and Economic Self-Sufficiency: Summary of a Research Briefing.
INSTITUTION National Academy of Sciences - National Research Council, Washington, DC. Board on Children and Families.
SPONS AGENCY Carnegie Corp. of New York, N.Y.; Foundation for Child Development, New York, N.Y.; National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
PUB DATE 95
NOTE 32p.
PUB TYPE Reports - Descriptive (141)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Child Development; Children; Early Intervention; Employment Problems; Family Problems; Financial Support; Parents; *Poverty; Social Services; Socioeconomic Status; *Welfare Recipients; *Welfare Services; *Well Being

ABSTRACT

This report is a summary of a December, 1994 research briefing presented by the Board on Children and Families of the National Research Council and the Institute of Medicine, and the Family and Child Well-Being Research Network of the National Institute of Child Health and Human Development, U.S. Department of Health and Human Services. This briefing was the first in a series of annual meetings on this topic, and was designed to bring to light new findings that highlight and inform questions regarding the effects on children and families of various components of welfare. The report is organized around four questions: (1) how do transitions into and out of welfare affect children's development; (2) what role does child care play in parents' attempts to move toward self-sufficiency; (3) do child care subsidies help or hinder low-income parents' efforts to work; and (4) how does child care affect children's well-being? It is suggested that future research should address the following questions: (1) what thresholds of parental education and family income must be attained for children to benefit; (2) how can efforts to understand the effects of welfare be informed by an understanding of the diversity of the welfare population; (3) what magnitude and duration of interventions does it take for programs to make a difference in children's lives; and (4) what is known about the factors that facilitate or inhibit fathers' participation in programs designed to provide support for the families? Contains 52 references. (MOK)

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PS 025503

BOARD ON
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*Enhancing
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Summary of Research Findings

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New Findings on Children, Families, and Economic Self-Sufficiency

Summary of a Research Briefing

Deborah Phillips and Anne Bridgman, *Editors*

Board on Children and Families

Commission on Behavioral and Social Sciences and Education
National Research Council

Institute of Medicine

NATIONAL ACADEMY PRESS
Washington, D.C. 1995

NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

Support for this project was provided by the Carnegie Corporation of New York, the Foundation for Child Development, and the Family and Child Well-Being Research Network of the National Institute of Child Health and Human Development, U.S. Department of Health and Human Services.

For a list of members of the Board on Children and Families, see page 27.

For a list of participants at the research briefing on welfare and children's development, see page 28.

For a list of other reports of the Board on Children and Families, see page 29.

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In 1993, *poverty among American children reached its highest level in 30 years*: today, 15.7 million children, or 22.7 percent, are poor (Bureau of the Census, 1994). A total of 9.3 million American children receive Aid to Families with Dependent Children (AFDC), the major cash welfare program for families with children, created primarily to ensure children's well-being and prevent them from being left destitute by parental poverty (see Moore et al., 1994). Many of the children who receive AFDC are very young; 40 percent of families that receive AFDC benefits have a child aged 2 or younger (Department of Health and Human Services, 1994).

Yet discussions of welfare rarely focus on children other than as family members who may benefit indirectly from their parents' improved economic status. There is scant information available about how young children are affected by their parents' welfare receipt or by transitions in and out of welfare, poverty, and work. Indeed, the research that has been done on the consequences for children of changes in family income yields little consensus as to how disparate trends in families' economic well-being affect children's development.

What Do We Know?

Researchers studying child poverty in the 1960s developed and tested interventions designed to ameliorate the negative effects

of poverty; much of this early research looked at children's intellectual development, measured by IQ tests and school achievement. Increases in child poverty in the early 1980s spurred a subsequent wave of research, with a focus on children's overall development. More recent studies continue to investigate how children are affected by low income, but they use a broader range of analytic frameworks and research methods than earlier research. These studies have explored such contextual influences as school, neighborhood, and community, and implications of poverty for children's socioemotional behavior. Despite this work, however, very little is known about the psychological subjective experience of poverty for children and their families (Huston et al., 1994).

A large body of research evidence documents that children raised in families with low socioeconomic status do worse than children raised in families with high socioeconomic status in terms of intellectual and social development, behavior problems, and delinquency (see Huston et al., 1994).

There is ongoing debate, however, over what explains these differences in development. How much is due to income per se, as opposed to other unmeasured facets of families' socioeconomic status? Much research on income effects has attempted to separate the effects of low income from the effects of single motherhood, minority status, low levels of education, and adolescent parenting—all of which are correlated with poverty. The web of conditions contribut-

ing to the problems of children in poverty has not been completely disentangled.

Research shows that families on welfare are generally poorer and more deprived than nonwelfare families with incomes below the poverty line: this probably reflects the fact that welfare payments are considerably below the poverty line, and welfare recipients are prohibited from having assets of more than \$1,000 and resources other than public assistance. These findings raise questions about the role of welfare—and families' transitions into and out of welfare—in children's development.

Transitions from welfare to work require child care, and reducing poverty has long been a rationale for federal and state child care policies in the United States, where 62 percent of low-income children under age 5 are in some weekly nonparental care arrangement (Brayfield et al., 1993). Within the context of considering child care as a way to lower poverty rates, two markedly different strategies have evolved. One strategy supports child care as a necessary adjunct to initiatives that prepare mothers for employment and deemphasizes its developmental effects on children. The other strategy calls for the provision of early intervention services to children in poverty in order to interrupt intergenerational cycles of poverty and welfare dependence. In this approach, the quality of care that children receive is viewed as instrumental to their school success, well-being in childhood, and

development into productive adulthood (Phillips, 1994).

Research on child care supports the value of high-quality care designed to meet children's developmental needs, but raises questions about possible harmful effects of the actual child care received by many low-income children. An extensive literature on early intervention programs for low-income children has documented positive and, in some cases, long-term consequences of high-quality center-based programs (Ramey and Campbell, 1994; Haskins, 1989; Bryant and Ramey, 1987; Lee et al., 1990). A different body of research on low-income children in more typical child care programs, however, has failed to document positive results, and shows some detrimental effects of unstable or low-quality care (Baydar and Brooks-Gunn, 1991; Vaughn et al., 1980).

Only recently have researchers begun to ask questions about *who* among low-income families has access to high-quality and stable child care. Furthermore, the effects of child care on adults, particularly in relation to the success with which they are able to achieve and sustain economic self-sufficiency, have been relatively neglected by researchers (but see Ramey and Campbell, 1994). Two-generation programs that combine self-sufficiency services for parents with early intervention for children in an effort to produce both immediate and lasting movement out of poverty are relatively new, so there is little research on their effectiveness.

How Can We Ensure Children's Well-Being?

In December 1994 the Board on Children and Families (of the National Research Council and the Institute of Medicine) and the Family and Child Well-Being Research Network (of the National Institute of Child Health and Human Development, U.S. Department of Health and Human Services) convened a research briefing on welfare and children's development. The first in a series of annual meetings on this topic, the briefing was designed to bring to light new findings that highlight and inform questions regarding the effects on children and families of various components of welfare. The briefing brought together researchers, congressional staff, and agency and foundation officials to focus on a primary goal of welfare: ensuring the well-being of children in the context of efforts to encourage families to move toward economic self-sufficiency. This report summarizes data presented at the briefing.

The findings in the report—on how children are affected by *changes* in family income and how child care may influence families' efforts to attain self-sufficiency—are intended to add to the literature on children and families living in poverty and to provide some clues to questions raised in policy discussions about these issues. The report is organized around four questions that emerged from the presentations and discussions at the briefing:

- How do transitions into and out of welfare affect children's development?
- What role does child care play in parents' attempts to move toward self-sufficiency?
- Do child care subsidies help or hinder low-income parents' efforts to work?
- How does child care affect children's well-being?

The December research briefing was planned in the spring of 1994, before welfare reform became the subject of intense scrutiny on Capitol Hill and among the nation's governors. Although it can be difficult to calmly consider new research in the light of a major national debate, that indeed was the goal of the briefing and of the ones that will follow in the coming years.

The decision to hold the research briefing reflected a desire to promote a more effective alliance between those who conduct scientific research and those who use that research to shape policies and programs. Participants agreed that research has a critical role to play in sharpening views of the implications for children of the nation's welfare system. Adding consequences for children to the repertoire of outcomes that are conventionally assessed as part of welfare evaluations can help ensure that children are not ignored as reform initiatives are debated. Efforts to discern the long-term effects of welfare reform on children can also inform initiatives that are designed to

prevent intergenerational poverty and long-term welfare dependence.

The briefing was *not* intended to offer a comprehensive review of the literature on family income, poverty, or child care, nor was it intended to provide the final word on

research in this area. Rather, it was designed to offer important, new, incremental evidence on these topics, and to serve as the first of a series of regular briefings that present research findings on various components of welfare and children's development.

HOW DO TRANSITIONS INTO AND OUT OF WELFARE AFFECT CHILDREN'S DEVELOPMENT?

The major goal of welfare reform is to move families off of welfare into jobs. This goal is driven by a belief in the value of financial self-sufficiency, but also by concerns about the detrimental effects of life on welfare, particularly for children. Research presented at the briefing confirms the importance of efforts to move families out of poverty, and also underscores the negative role of both poverty and welfare in the lives of children.

Analyses of data from the 1986 and 1990 waves of the National Longitudinal Survey of Youth (NLSY) presented by Kristin Moore (Moore et al., 1994) found that children in families that were continuously on welfare, and thus also continuously in poverty between 1986 and 1990, were 1.6 times more likely to exhibit high levels of behavior problems in 1990 than children in families that were never on welfare and never poor.¹ The data also show that children in families that moved off of welfare, but not out of poverty, were likely to have behavior problems. Overall, the implications of poverty and welfare were fairly comparable, with each having clear negative effects on children's behavior. The children with by far the highest incidence of behavior problems, however, were those in families that

were not in poverty in 1986 but were in poverty and on welfare in 1990; see Figure 1.

Moore's data, based on research that examined the developmental consequences of naturally occurring economic transitions, are from the NLSY-Child Supplement, a large-scale, longitudinal survey of American youth who were 14 to 21 when the study began in 1979. In 1986, when the NLSY respondents were 21 to 29, the data collection effort included a substantial battery of assessment information about the children of the roughly 3,000 women who had given birth; the children were reassessed in 1988 and 1990. The sample included an overrepresentation of blacks and Hispanics.

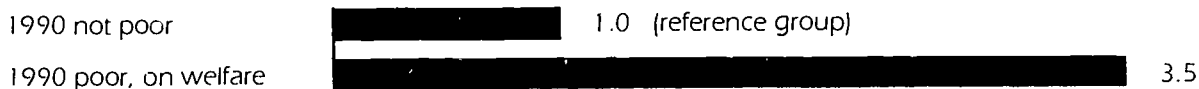
The children in the NLSY are not fully representative of all children in their age group because the NLSY is a random sample of young mothers, not of children. With each subsequent wave of the study, the sample of mothers and children becomes increasingly more representative as the women who are bearing children age. The study contains a wide range of variables, including family background, maternal marital and employment histories, education and employment of family members, and household composition.

¹ Behavior problems were measured by the Behavior Problems Index, constructed from parent reports of child behavior.

Figure 1

Relative Risk of Being in the Highest Quartile (Worst) of Behavior Problems Index, by Welfare/Poverty Transition 1986-1990, for Children Aged 7-12 in 1990, NLSY

1986 not poor



1986 poor, not on welfare



1986 poor, on welfare



NOTE: The effect of welfare/poverty transition subgroup is net of race/ethnicity, child's age, gender, mother's AFQT (Armed Forces Qualifying Test) score, mother's education, family size, the log of 1986 income, number of years in child care in the first 3 years of the child's life, and the 1986 HOME inventory score.

SOURCE: Data from Moore et al. (1994)

The study found similar results for measures of the nurturance and cognitive stimulation that children receive at home.² Children who never experienced poverty or welfare were 5.3 times more likely to live in homes characterized by high levels of warmth and stimulation than children in families that were continuously on welfare between 1986 and 1990. The home environments of children whose families had stopped receiving welfare but remained poor in 1990 were not significantly different from those of children whose families had remained on welfare.

But children in families that were poor or on welfare in 1986 but had left poverty by 1990 were 3.5 times more likely to live in nurturing and stimulating homes than children in families that were continuously on welfare, according to Moore and her colleagues (1994); see Figure 2.

For reasons that are unclear, children in families that were poor throughout the 4-year period yet never received welfare did relatively well. For example, children in families that were continuously poor but

² The home environment was measured by the Home Observation for Measurement of the Environment-Short Form (HOME-SF) inventory, a measure of the quality and nature of the home environment that is comprised of items reported by the mother or rated by the interviewer.

never on welfare were 4.5 times more likely to live in home environments rated in the highest quartile than children in families that were continuously on welfare. These poor families were more often married, Hispanic, rural, or Southern than the poor families on welfare, but none of these differences was found to explain the relative well-being of the children in the non-welfare families. Nor did analyses of income levels explain the findings: about half of families that went off welfare but remained poor *and* families that were poor but never on welfare had incomes of less than 50 percent of the poverty line. Moore's study analyzed families' natural transitions into and out of wel-

fare and poverty, not transitions that were the result of public policies. It may therefore be inaccurate to expect similar results for children and families taking part in mandated welfare-reform programs.

Other evidence presented at the briefing by Jeanne Brooks-Gunn, based on a sample of low-birthweight children who participated in the Infant Health and Development Program (IHDP), shows the effect of families' income levels on children's cognitive development during the preschool years (Brooks-Gunn et al., 1994; Smith and Brooks-Gunn, 1994). The research was conducted using the IHDP data set, an eight-site randomized

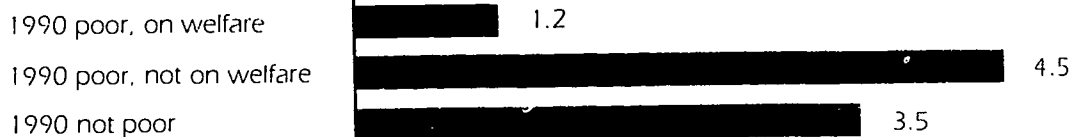
Figure 2

Relative Risk of Being in the Highest Quartile (Best) of Home Environment Quality, by Welfare/Poverty Transition 1986-1990, for Children Aged 7-12 in 1990, NLSY

1986 not poor



1986 poor, not on welfare



1986 poor, on welfare



NOTE: The effect of welfare/poverty transition subgroup is net of race/ethnicity, child's age, gender, mother's AFQT (Armed Forces Qualifying Test) score, mother's education, family size, the log of 1986 income, number of years in child care in the first 3 years of the child's life, and the 1986 HOME inventory score.

SOURCE: Data from Moore et al. (1994)

clinical trial to test the efficacy of educational and family-support services in reducing the incidence of developmental delays in low-birthweight, preterm infants; the sample size was 600.

Moving families off welfare was not associated with better cognitive outcomes if family income remained near the poverty line, the study found. Most children in families that have ever received AFDC leave welfare in the first 2 years, but more than half of the current caseload of children have been on AFDC for 5 years or more.³ The data point to a central challenge of welfare reform: setting in motion changes that not only move parents into the workforce, but begin to reduce levels of child and family poverty in current and future generations.

Data presented at the briefing raise additional questions about the effect of welfare

and of income on children's development. What variables that are presently unmeasured might help explain the apparent effects of welfare on children? When and how do fluctuations in family income change the trajectories of children's lives? How do children fare during the transition from welfare receipt to their parents' sustained employment? And how does family structure—including the role of single parenthood and marital disruption—influence the effects on children of income fluctuations? These findings also raise questions about the effects of the source of income—whether from welfare, earnings, or child support—on families' efforts to move toward self-sufficiency and on children's development. And they lead to considerations of how to better assess the *practical* significance of the differences revealed by research among children with differing patterns of economic dependency and well-being.

³ Data presented at research briefing by Lal Donna A. Pavetti of the Urban Institute.

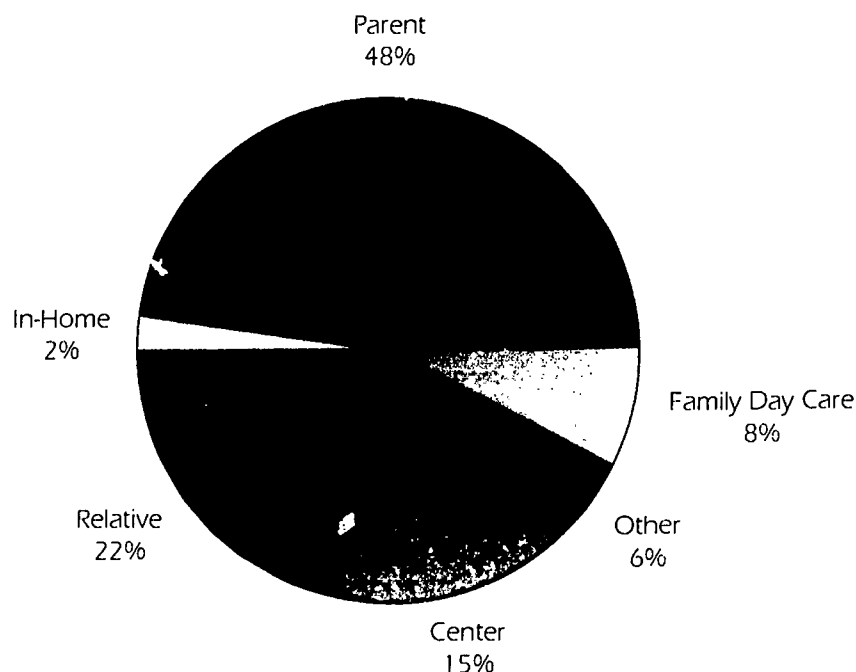
WHAT ROLE DOES CHILD CARE PLAY IN PARENTS' ATTEMPTS TO MOVE TOWARD SELF-SUFFICIENCY?

Support for child care in the context of welfare reform is generally viewed as a necessary, if costly and difficult, accompaniment to initiatives aimed at moving families from welfare to work. (See Figure 3 and Table 1 for data on current arrangements in low-income families.) The stakes involved in making stable and adequate child care available to families on welfare, however, may be higher than previously assumed. New evidence indicates that the provision of

safe and dependable child care is important not just for children, but also for their mothers' efforts to prepare for and maintain jobs.

Data for the analysis were collected by Marcia Meyers (1994) as part of a prospective longitudinal study of single parent AFDC recipients taking part in a JOBS welfare-to-work program in California (the GAIN program). Established in 1985, GAIN provides job search, education, train-

Figure 3
Main Child Care Arrangement Of Low-Income Children Under Age 5,^a by Age



^a The National Child Care Survey 1990 and its low-income supplement, from which this figure comes, define low-income families as those with annual incomes below \$15,000.

SOURCE Adapted from Brayfield et al. (1993). Reprinted with permission.

Table 1
Main Child Care Arrangement of Low-Income Children Under Age 5,
by Household Type

Family Type	Sample Size	Child Care Provider					
		Parent (%)	Relative (%)	In-Home (%)	Family Day Care (%)	Center (%)	Other (%)
Two parents	310	64.1	15.8	1.5	5.5	8.5	4.6
Both employed	75	40.2	26.7	0.8	11.0	12.1	9.3
One employed	172	69.2	15.4	2.3	4.3	5.2	3.6
None employed	62	79.0	3.9	0.0	2.3	13.2	1.6
Single mother	366	37.7	25.7	2.4	9.9	20.3	3.8
Employed	119	16.9	30.1	1.0	21.0	27.2	3.8
Not employed	247	47.8	23.7	3.1	4.6	17.0	3.8
Total	710	47.5	22.2	2.0	7.8	14.7	5.8

NOTE: The National Child Care Survey 1990 and its low-income supplement, from which this table comes, define low-income families as those with annual incomes below \$15,000.

SOURCE: Adapted from Brayfield et al. (1993). Reprinted with permission.

ing, and supportive services to AFDC recipients in all 58 counties in California. A total of 255 single mothers were interviewed three times for the study.

Meyers' research demonstrates the importance of adequate child care for parents' success in welfare-to-work programs. Aspects of safety, quality, and flexibility were found to be especially important: AFDC recipients in California's welfare-reform program were significantly more likely to drop out of the education and training program when child care arrangements lacked

flexibility in accommodating sick children, staffing ratios fell below recommended levels,⁴ and mothers questioned whether their children's basic safety was protected in the care arrangement. Indeed, mothers who felt assured of the safety of their children and who fully trusted the care providers were *twice* as likely to complete the job training program as those who did not; see Figure 4.

Child care remains important once parents enter the workforce. In the National Child Care Survey (Hofferth et al., 1991), parents who used in-home care, compared with

⁴ Recommended staffing levels are those recommended by the National Association for the Education of Young Children (NAEYC); for children aged 3 to 5, NAEYC calls for no more than 20 children in one group and staff-child ratios of a maximum of 1 to 10; levels differ for children under age 3 and over age 5.

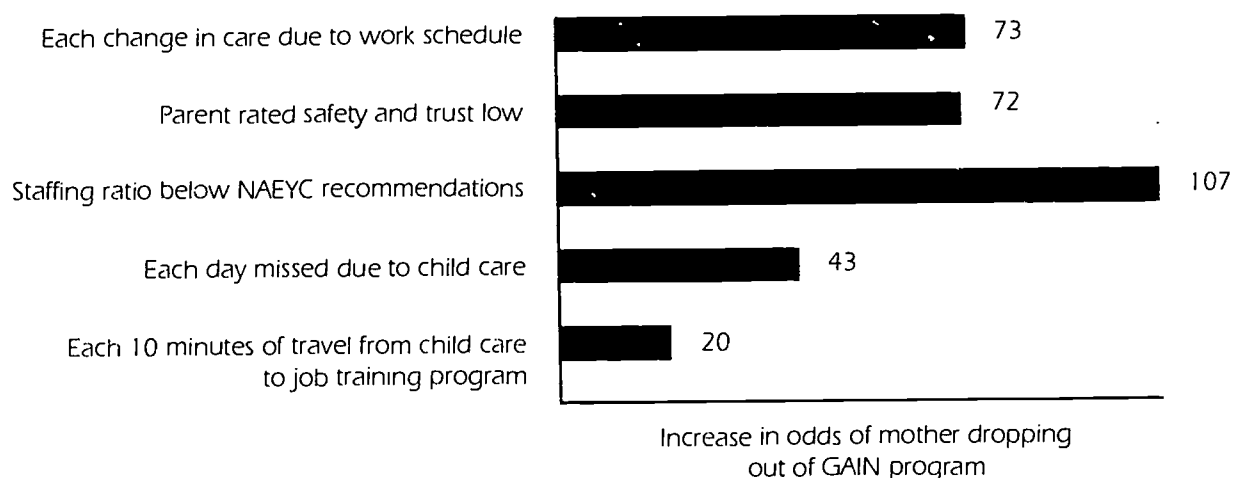
those who used formal, out-of-home care, reported a greater incidence of lost time from work because the provider was not available. Another study found that parents with informal child care arrangements were more likely to report that child care problems prevented them from working than were parents whose children were in formal center-based care (Siegel and Loman, 1991). Yet the inflexible hours of center-based care frequently pose a barrier to its use by the many low-income working parents with nonstandard working hours or more than one job (Hofferth et al., 1991).

This initial evidence, that the successful completion of job training is contingent on child care that is reliable and of acceptable quality and that matches parents' schedul-

ing needs, highlights the pivotal role that child care plays in facilitating work effort among families in poverty. The availability of stable, reliable, and safe child care also appears to eliminate a barrier—some say an excuse—to parents' working or taking part in job training programs.

Further research is needed to address the role of child care programs in facilitating parents' job training and employment. What features of child care make a tangible difference in parents' efforts to prepare for and sustain employment? What policies can facilitate parents' access to arrangements that have these features? It would be useful to know, too, about the effects on infants and toddlers in families that receive AFDC of their mothers' participation in jobs and job training.

Figure 4
Role of Child Care in Attrition Of Single Mothers in California GAIN Program



NOTE: Study controlled for age of child; type of child care; and mothers' education, race/ethnicity, AFDC history, prior work history, county of residence, and GAIN program status.

SOURCE: Data from Meyers (1992)

DO CHILD CARE SUBSIDIES HELP OR HINDER LOW-INCOME FAMILIES' EFFORTS TO WORK?

Data presented at the briefing direct attention to the difficulties posed to families that are attempting to achieve self-sufficiency by both lack of access to financial assistance with child care and features of low-wage jobs. These difficulties constrain parental choice of child care, particularly among the working poor, and may create disincentives to employment. The way child care subsidies are currently apportioned may actually penalize working poor families relative to both nonworking poor and nonpoor families. Efforts to match child care schedules with jobs that often involve nonstandard and rotating work hours and inflexibility with respect to unpredictable family crises, such as sick children, constitute an additional obstacle to sustaining both employment and responsible parenting.

All parents, regardless of income, want child care that is beneficial to their children, reliable and trustworthy, and—perhaps even more important for inner-city and poor families—that ensures children's safety, according to research findings presented by Sandra Hofferth (1995) (see also Lerner and Phillips, 1994). Hofferth's study was based on data from the National Child Care Survey 1990, a nationally representative survey of 27 million families with 47.7 million children under age 13, conducted from November 1989 through May 1990, and on a profile of child care settings, a sampling of

all regulated and nonregulated family day care homes done by Mathematica Policy Research, Inc., from October 1989 through February 1990.

Despite similar hopes for child care, families in different income groups exhibit different patterns of child care use; working-poor families with children under age 6 are more likely than middle-class families to use a relative and less likely to use a center, sitter, or classroom program. Even more striking is the wide gap in the use of center care for infants and toddlers—5 percent for the working poor and 19 percent for the non-working poor.

Recent evidence suggests that these utilization patterns may not reflect parents' preferences, particularly for low-income, single mothers who are in the labor force. Indeed, evidence presented at the briefing by Hofferth (1995) and by Ellen Kisker (Kisker and Silverberg, 1991), as well as other studies (see, e.g., Sonenstein and Wolf, 1991), suggests that large percentages of mothers who are single, poor, or in their teenage years would change arrangements if they could. Those using a relative are most likely to want to change arrangements; those using a child care center are least likely to want to change, according to Hofferth's findings. Indeed, there are growing indications that low-income parents are increas-

ingly seeking center-based care for their older preschool children, with parents citing child safety, learning opportunities, and reliability as reasons for their desire to shift to center-based care (Hofferth, 1995).

If patterns of child care use among some poor parents don't reflect their preferences, what are the major determinants of the care their children receive? Research presented at the briefing indicates that parents' ability to implement their child care choices is strongly governed by the structure of subsidies and the conditions of low-wage work. Families that succeed in leaving welfare and entering the labor force sometimes remain poor and thus have a need for low-cost child care. Working-poor families are also, however, the least likely of all income groups to receive subsidies to help them purchase child care and preschool programs, Hofferth's study found (see Figure 5).

Hofferth said that only 18 percent of working-poor families reported receiving some assistance in paying for child care; adding assistance through the income tax system increased the proportion receiving some assistance to 30 percent of working-poor families (compared with 37 percent of non-working poor families). A separate study, cited by Meyers (1994), found that many AFDC recipients were unaware of child care subsidies and other programs designed specifically to assist them.

Accordingly, working-poor families spend a substantially *higher* share of their budgets on

child care than do more advantaged families (see Figure 6). They lack both the subsidies and the purchasing power to place their children in the kind of care arrangements that they prefer (Hofferth, 1995).

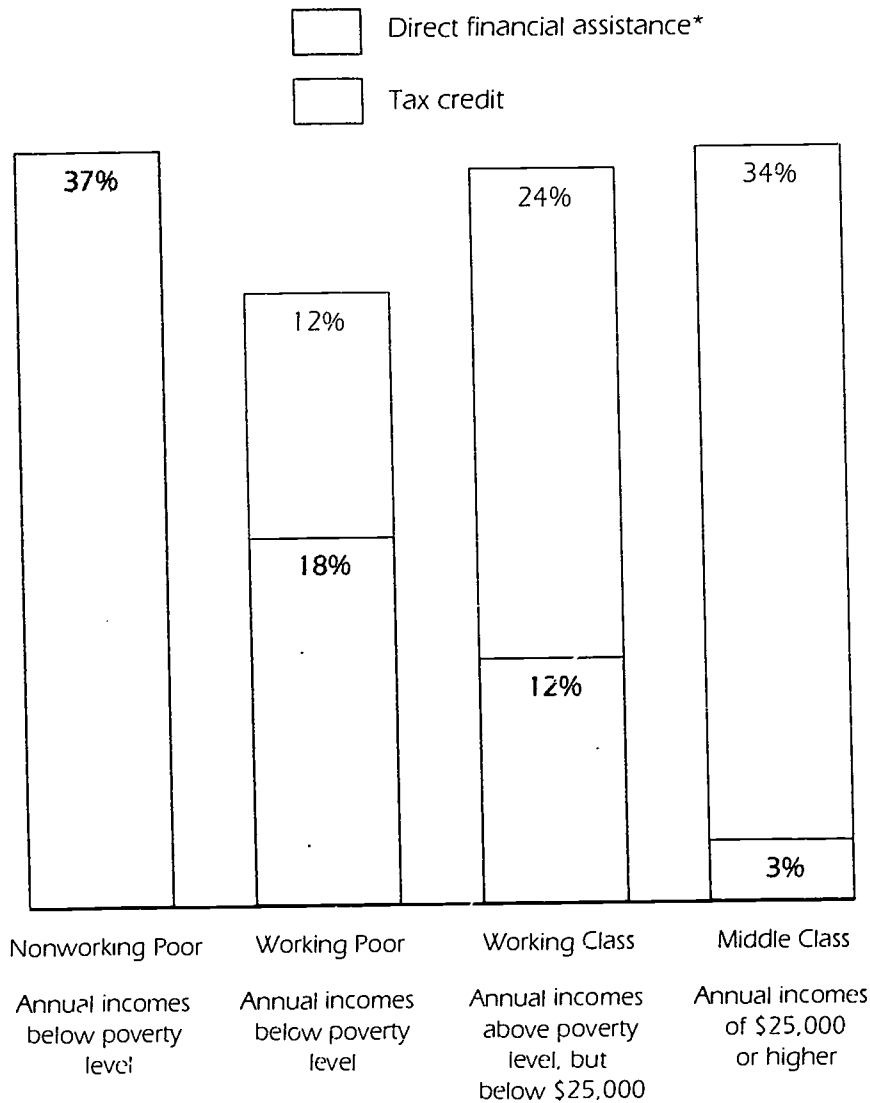
But subsidies alone are not enough. Mismatches between child care and job schedules pose an additional obstacle to juggling parenting and working that may disproportionately affect low-income families, according to findings presented at the briefing.

Working-poor parents are more likely than nonpoor working parents to work nonstandard hours and have changeable schedules, but most child care centers and family day care homes tend to operate during standard business hours (Hofferth, 1995). One-third of working-poor mothers work on weekends, severely limiting the availability of centers and family day care homes; only 10 percent of centers and 6 percent of family day care homes provide care on weekends. Another 8 to 9 percent of working-poor mothers work evenings or nights; only 3 percent of centers and 13 percent of regulated and 20 percent of nonregulated family day care programs provide care in the evenings. And almost half of working-poor parents work on rotating or changing schedules, which presents an even greater challenge to their efforts to obtain stable child care (Hofferth, 1995).

These recent data suggest that just as families make the transition from dependency to self-sufficiency, they are likely to experience

Figure 5

Families with Preschool Children Who Received Direct Financial Assistance in Paying for Child Care and Who Claimed Child Care Tax Credits, in 1988



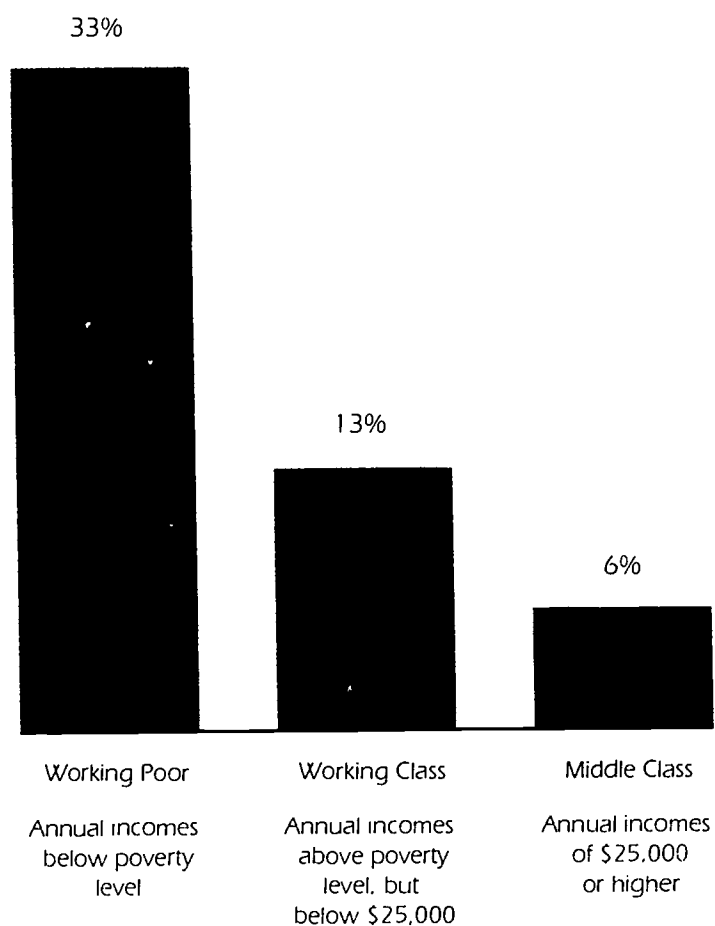
* Included as direct financial assistance are funds as well as services from government, social service agencies, employers, and relatives.

SOURCE: Adapted from Hofferth (1995). Reprinted with permission.

reduced financial support for child care and serious hardships in coordinating child care and work schedules. These findings raise questions about equity of access to preferred child care arrangements by working-poor and low-income families, and the conse-

quences of existing inequities for work effort. It would also be useful to know how the patchwork of child care arranged by some parents in low-paying jobs with nonstandard hours affects children's development.

Figure 6
Income (Budget Share) Spent on Child Care by Families Who Pay for Child Care,
by Income Group, 1990



NOTE: Calculations include child care tax credit.

SOURCE: Adapted from Hofferth (1995). Reprinted with permission.

HOW DOES CHILD CARE AFFECT CHILDREN'S WELL-BEING?

Most current efforts to reform the nation's welfare system require welfare recipients to work or participate in job training programs. Nonparental care is generally necessary if mothers are to meet such requirements; it may be an especially critical factor for poor and low-income mothers who are likely to be raising children alone and for dual-earner families. Currently, 82 percent of nonworking poor families are headed by a single parent and 65 percent of working-poor families consist of two-earner or single-parent households (Hofferth, 1995). It is therefore important to consider how children are affected by the care they receive while their parents are working or taking part in job training programs.

The results of a four-site study of 400 child care centers (Cost, Quality and Child Outcomes Study Team, 1995), presented at the briefing, found that child care at most centers in the United States, especially for infants and toddlers, does not meet children's needs for health, safety, warm relationships, and learning. The findings, presented by Ellen Peisner-Feinberg, show that only 14 percent of centers received a rating of developmentally appropriate, while 12 percent were found to be of such poor quality that basic sanitary conditions were not met, children's safety was endangered, or caregivers offered little or no response to children's efforts to communicate; 40 per-

cent of infant or toddler rooms were observed to offer poor-quality care. The study was based on data from 400 child care centers in California, Colorado, Connecticut, and North Carolina, obtained through interviews, questionnaires, and observations of children and caregivers in child care settings.

The study also found that children's cognitive and social development are positively related to the quality of their child care experience. Children in higher quality preschool classrooms displayed greater receptive language ability and premathematics skills and had more advanced social skills than those in lower quality classrooms, according to the study. Furthermore, children in higher quality centers had more positive self-perceptions and attitudes toward their child care, and their teachers were more likely to have warm, open relationships with them, factors considered important to a child's capacity to enter school ready to learn.

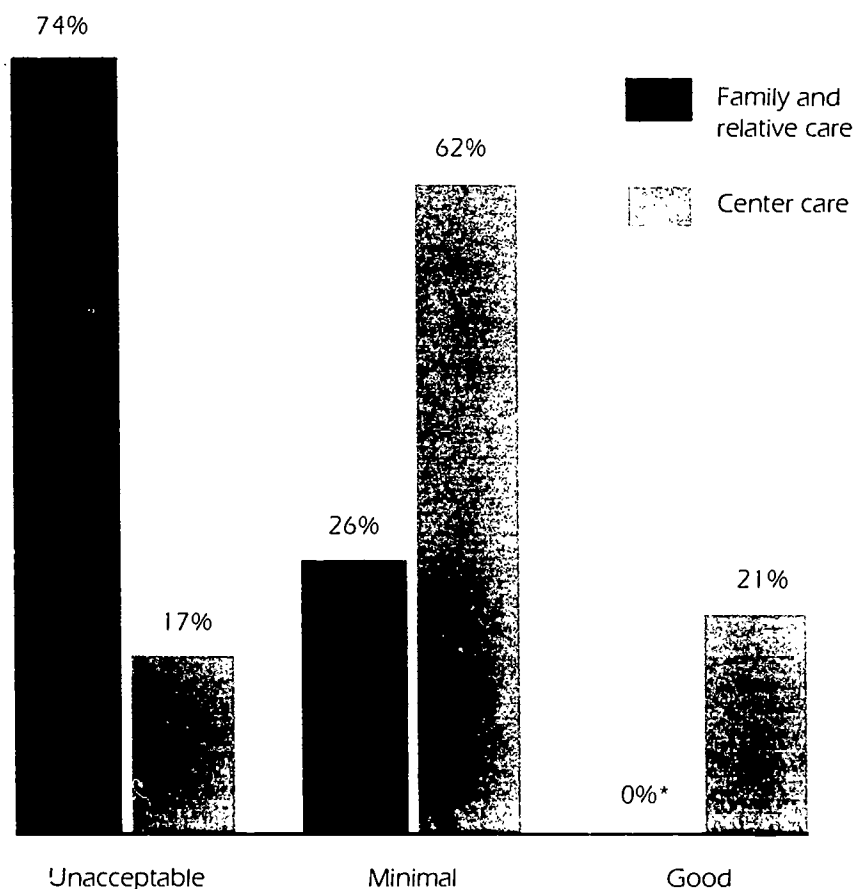
The study cited by Peisner-Feinberg, a principal investigator, also found that in some instances, variation in quality had a larger impact on children typically at risk—specifically, on receptive language ability of minority children and on the self-perceptions of children of less-educated mothers—than on other children.

A new study presented by Carollee Howes (Howes and Smith, 1994) involved observations of 226 family and relative care providers in California, Texas, and North Carolina. For low-income families, the quality of these arrangements was found to be quite deficient: 74 percent of children living in families with annual incomes be-

low \$20,000 were observed to be in unsafe, unsanitary, and unresponsive child care (see Figure 7).

The results of another study presented at the briefing show the positive effects on children of developmentally beneficial child care. The study of low-birthweight children

Figure 7
Ratings of Family and Relative Care and Center Care (Low-Income Sample)



*There were no "good" ratings for family and relative care.

NOTE: Ratings are by the Family Day Care Environmental Rating Scale (equivalent to the Early Childhood Environmental Rating Scale), which comprehensively assesses the day-to-day quality of care provided to children, ranging from safety of equipment to quality of teaching.

SOURCE: Howes and Smith (1994). Reprinted with permission.

(Brooks-Gunn et al., 1994; Smith and Brooks-Gunn, 1994), presented by Jeanne Brooks-Gunn, found that children who took part in a high-quality center-based program had significantly higher IQ and verbal ability scores than children who did not, regardless of the welfare status of their parents. Children who participated in the program also exhibited lower scores on an index of behavior problems, as reported by their mothers, than those who did not. The Infant Health and Development Program was an eight-site randomized clinical control trial testing the efficacy of providing early education and parenting services to families who had a low-birthweight, premature infant; the sample size was 600.

Taken together, data presented at the briefing indicate that high-quality child care that is specifically designed to offer resources that may not otherwise be available

to poor families can reap developmental benefits. Yet many children living in poverty receive child care that, at best, does not support their optimal development and, at worst, may compromise their health and safety.

Additional research is needed to determine how much difference variations in the stability and quality of child care make for low-income children, apart from the effect of their home environments. It would also be useful to learn more about the long-term effects on children of inadequate and dangerous care. Furthermore, additional studies are needed on child care that occurs in home settings by relatives and nonrelatives—the arrangements that are used by the majority of welfare families and that have been the subject of much less research than has center-based child care.

ISSUES FOR FUTURE RESEARCH

The research briefing on welfare and children's development presented new evidence on enduring questions about how children and their families are affected by two of the central consequences of welfare: changes in family income and reliance on nonparental child care. The briefing also raised questions about many other issues that merit the attention of researchers and policymakers; for example, the importance of capturing the short- and long-term effects on children of national and state welfare initiatives was an overriding concern at the briefing.

In addition to the questions raised at the end of each part of this report, participants

raised the following issues for future research and discussion:

- What thresholds of parental education and family income must be attained for children to benefit?
- How can efforts to understand the effects of welfare be informed by an understanding of the diversity of the welfare population?
- What magnitude and duration of interventions does it take for programs to make a difference in children's lives?
- What is known about the factors that facilitate or inhibit fathers' participation in programs designed to provide support for their families?

REFERENCES AND BIBLIOGRAPHY

References

- Baydar, Nazli, and Jeanne Brooks-Gunn
1991 Effects of maternal employment and child-care arrangements on preschoolers' cognitive and behavioral outcomes: Evidence from the children of the National Longitudinal Survey of Youth. *Developmental Psychology* 27(6):932-45.
- Brayfield, April A., Sharon Gennis Deich, and Sandra L. Hofferth
1993 *Caring for Children in Low-Income Families: A Substudy of the National Child Care Survey, 1990*. Washington, D.C.: The Urban Institute Press.
- Brooks-Gunn, Jeanne, Ruth Gross, Pamela K. Klebanov, Cecilia P. McCarton, Marie C. McCormick, Robert Bradley, and David Scott
1994 Effects of Early Educational Intervention in Families Who Do and Who Do Not Receive Welfare: The Infant Health and Development Program. Paper presented at research briefing, Board on Children and Families, December 5-6, 1994. Teachers College, Columbia University.
- Bryant, Donna M., and Craig T. Ramey
1987 An analysis of the effectiveness of early intervention programs for high-risk children. Pp. 33-78 in M. Guralnick and C. Bennett, eds., *The Effectiveness of Early Intervention for At-Risk and Handicapped Children*. San Diego, Calif.: Academic Press.
- Bureau of the Census
1994 Supplemental tables, historical income, historical poverty, and valuing noncash benefits. Washington, D.C.: U.S. Department of Commerce.
- Cost, Quality and Child Outcomes Study Team
1995 *Cost, Quality, and Child Outcomes in Child Care Centers*. Denver, Colo.: University of Colorado at Denver.
- Department of Health and Human Services
1994 Characteristics and financial circumstances of AFDC recipients, FY 1992. Washington, D.C.: Office of Family Assistance, U.S. Department of Health and Human Services.
- Haskins, Ron
1989 Beyond metaphor: The efficacy of early childhood education. *American Psychologist* 44:274-282.
- Hofferth, Sandra L.
1995 Caring for children at the poverty line. *Children and Youth Services Review* 17(1/2): 1-21.
- Hofferth, Sandra L., April Brayfield, Sharon Deich, and Pamela Holcomb
1991 *National Child Care Survey, 1990*. Washington, D.C.: The Urban Institute Press.
- Howes, Carollee, and Ellen Smith
1994 Effects of Typical Child Care on Children in Poverty. Paper presented at research briefing, Board on Children and Families, December 5-6, 1994. University of California at Los Angeles.
- Huston, Aletha C., Vonnice C. McLoyd, and Cynthia Garcia Coll
1994 Children and poverty: Issues in contemporary research. *Child Development* 65(2) (April):275-282.
- Kisker, Ellen Eliason, and Martha Silverberg
1991 Child care utilization by disadvantaged teenage mothers. *Journal of Social Issues* 47:159-178.

- Larner, Mary, and Deborah A. Phillips
 1994 Defining and valuing quality as a parent. Pp. 43-60 in P. Moss and A. Pence, eds., *Valuing Quality in Early Childhood Services: New Approaches to Defining Quality*. London: Paul Chapman Publishers.
- Lee, Valerie E., Jeanne Brooks-Gunn, Elizabeth Schnur, and Fong-Ruey Liaw
 1990 Are Head Start effects sustained? A longitudinal follow-up comparison of disadvantaged children attending Head Start, no preschool, and other preschool programs. *Child Development* 61:495-507.
- Meyers, Marcia K.
 1992 *GAIN Family Life and Child Care Study*. Berkeley, Calif.: University of California, Family Welfare Research Group.
 1994 Child Care and Welfare Reform: Findings from California. Paper presented at research briefing, Board on Children and Families, December 5-6, 1994. Syracuse University.
- Moore, Kristin A., Donna Ruane Morrison, Martha Zaslow, and Dana A. Gleit
 1994 Ebbing and Flowing, Learning and Growing: Family Economic Resources and Children's Development. Paper presented at research briefing, Board on Children and Families, December 5-6, 1994. Child Trends, Inc., Washington, D.C.
- Phillips, Deborah A.
 1994 With a little help: Children in poverty and child care. Pp. 158-189 in A.C. Huston, ed., *Children in Poverty*. New York: Cambridge University Press.
- Ramey, Craig T., and Frances A. Campbell
 1994 Poverty, early childhood education, and academic competence: The Abecedarian experiment. Pp. 190-221 in A.C. Huston, ed., *Children in Poverty*. New York: Cambridge University Press.
- Siegel, Gary L., and L. Anthony Loman
 1991 Child Care and AFDC Recipients in Illinois: Patterns, Problems and Needs. St. Louis, Mo.: Institute of Applied Research.
- Smith, Judith R., and Jeanne Brooks-Gunn
 1994 Developmental Effects of Natural Transition in Welfare Receipt. Paper presented at research briefing, Board on Children and Families, December 5-6, 1994. Teachers College, Columbia University.
- Sonenstein, Freya L., and Douglas A. Wolf
 1991 Satisfaction with child care: Perspectives of welfare mothers. *Journal of Social Issues* 47:15-32.
- Vaughn, Brian E., Frederick L. Gove, and Byron Egeland
 1980 The relationship between out-of-home care and the quality of infant-mother attachment in an economically disadvantaged population. *Child Development* 51:971-75.
- Further Reading on Income and Poverty**
- Bane, Mary Jo
 1992 How much does poverty matter? Pp. 37-44 in P.N. Van de Water and L.B. Schorr, eds., *Security for America's Children: Proceedings of the Fourth Conference of the National Academy of Social Insurance*. Dubuque, Iowa: Kendall/Hunt.
- Bane, Mary Jo, and David Ellwood
 1994 *Welfare Realities: From Rhetoric to Reform*. Cambridge, Mass.: Harvard University Press.
- Chase-Lansdale, P. Lindsay, and Jeanne Brooks-Gunn, eds.
 in *Escape from Poverty: What Makes a Difference for Children?* New York: Cambridge University Press.

Citro, Constance A., and Robert T. Michael, eds.

- 1995 *Measuring Poverty: A New Approach*. Panel on Poverty and Family Assistance: Concepts, Information Needs and Measurement Methods, Committee on National Statistics, National Research Council. Washington, D.C.: National Academy Press.

Danziger, Sheldon H., Gary D. Sandefur, and Daniel H. Weinberg, eds.

- 1994 *Confronting Poverty: Prescriptions for Change*. New York: Russell Sage Foundation, and Cambridge, Mass.: Harvard University Press.

Duncan, Greg, Jeanne Brooks-Gunn, and J. Larry Aber, eds.

- 1994 *Neighborhood Poverty: Context and Consequences for Development*. New York: Russell Sage Foundation.

Garfinkel, Irwin, Sara S. McLanahan, and Philip K. Robins, eds.

- 1994 *Child Support and Child Well-Being*. Washington, D.C.: The Urban Institute Press.

Gueron, Judith M., and Edward Pauly

- 1991 *From Welfare to Work*. A Manpower Demonstration Research Corporation Study. New York: Russell Sage Foundation.

Haveman, Robert, and Barbara Wolfe

- 1994 *Succeeding Generations: On the Effects of Investments in Children*. New York: Russell Sage Foundation.

Huston, Aletha C., ed.

- 1994 *Children in Poverty*. New York: Cambridge University Press.

Korenman, Sanders, Jane E. Miller, and John E. Sjaastad

Long-Term Poverty and Child Development in the United States: Results from the NLSY. IRP Discussion Paper No. 1044-94. Madison: Institute for Research on Poverty, University of Wisconsin.

McLanahan, Sara, and Gary Sandefur

- 1994 *Growing Up with a Single Parent: What Hurts, What Helps*. Cambridge, Mass.: Harvard University Press.

Mead, Lawrence M.

- 1992 *The New Politics of Poverty: The Nonworking Poor in America*. New York: Basic Books.

Palmer, John L., Timothy Smeeding, and Barbara Boyle Torrey, eds.

- 1988 *The Vulnerable*. Washington, D.C.: The Urban Institute Press.

Pavetti, LaDonna Ann

- 1993 *The Dynamics of Welfare and Work: Exploring the Process by Which Women Work Their Way Off Welfare*. Malcolm Wiener Center for Social Policy Working Papers, John F. Kennedy School of Government, Harvard University.

Riccio, James, Daniel Friedlander, and Stephen Freedman

- 1994 *GAIN: Benefits, Costs, and Three-Year Impacts of a Welfare-to-Work Program*. New York: Manpower Demonstration Research Corporation.

Ruggles, Patricia

- 1990 *Drawing the Line: Alternative Poverty Measures and Their Implications for Public Policy*. Washington, D.C.: The Urban Institute Press.

Smith, Sheila, ed.

- 1995 *Two-Generation Programs for Families in Poverty: A New Intervention Strategy*. Norwood, N.J.: Ablex Publishing Corp.

Somerville, Susan C., ed.

- 1994 *Child Development, Special Issue: Children in Poverty* 65(2)(April). Chicago: University of Chicago Press.

Further Reading on Child Care

Besharov, Douglas J., ed.

- 1995 *Enhancing Early Childhood Programs: Burdens and Opportunities*. Washington, D.C.: American Enterprise Institute for Public Policy Research.

Booth, Alan, ed.

- 1992 *Child Care in the 1990s: Trends and Consequences*. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Casper, Lynn M., Mary Hawkins, and Martin O'Connell

- 1994 *Who's Minding the Kids? Child Care Arrangements: Fall 1991*. Bureau of the Census, Current Population Reports. Washington, D.C.: U.S. Department of Commerce.

Hofferth, Sandra L., and Deborah A. Phillips, eds.

- 1991 *Journal of Social Issues: Child Care Policy Research* 47(2). New York: Plenum Publishing Corporation.

Kisker, Ellen Eliason, Rebecca Maynard, Anne Gordon, and Margaret Strain

- 1989 *The Child Care Challenge: What Parents Need and What Is Available in Three Metropolitan Areas*. Princeton, N.J.: Mathematica Policy Research, Inc.

Martinson, Karin, and James Riccio

- 1989 *GAIN: Child Care in a Welfare Employment Initiative*. New York: Manpower Demonstration Research Corporation.
- 1990 *Who Cares for America's Children? Child Care Policy for the 1990s*. Panel on Child Care Policy, Committee on Child Development Research and Public Policy, Commission on Behavioral and Social Sciences and Education. Washington, D.C.: National Academy Press.

Phillips, Deborah A., ed.

- 1987 *Quality in Child Care: What Does Research Tell Us?* Washington, D.C.: National Association for the Education of Young Children.

Zigler, Edward F., and Edmund W. Gordon, eds.

- 1982 *Day Care: Scientific and Social Policy Issues*. Boston: Auburn House Publishing Company.

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